

Motorola

HOME RADIO

S E R V I C E M A N U A L

MODELS

63C1

63C2

63C3

CHASSIS

HS-397

GENERAL INFORMATION

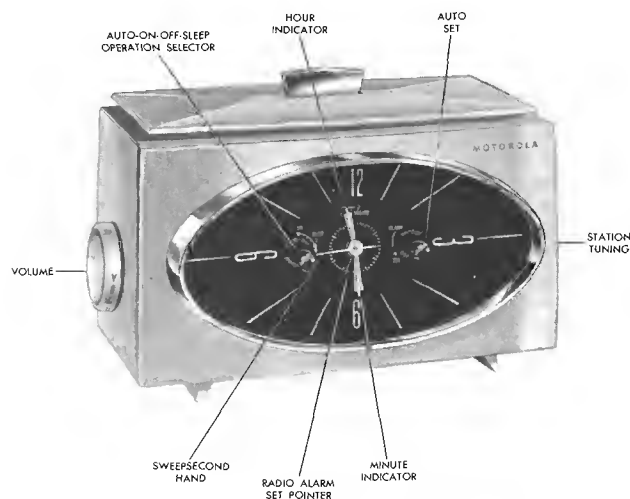
TYPE - AC table model superheterodyne with appliance outlet and self-contained electric clock for automatically controlling the operation of the radio and the outlet.

RECEIVER MODELS -	Model	Color
	63C1	Mahogany
	63C2	Sand
	63C3	Spruce

TUNING RANGE - 535 to 1620 Kc IF - 455 Kc

TUBE COMPLEMENT -	Type	Function
	12BA6	RF Amplifier
	12BE6	Converter
	12BA6	IF Amplifier
	12AT6	Det, AVC & AF Amp
	35C5	Power Amplifier
	35W4	Rectifier

POWER SUPPLY - Operates from 117 volts, 60 cycle, alternating current only. Power consumption 37 watts.



APPLIANCE OUTLET - For use with 117 volt AC appliances only, rated at 1100 watts or less.

CLOCK - Telechron self-starting electric clock, with Motorola face and hands.

OPERATING INSTRUCTIONS

The clock radio is ready to operate when you plug it into any 117 volt 60 cycle AC power line. Do not attempt to operate on DC as the clock motor will be damaged.

The clock is self-starting and will operate when power cord is plugged into the power outlet. Movement of the sweep second hand indicates the clock is running. To set the clock, turn TIME SET knob (on rear of radio) in a clockwise direction only. The self-starting feature, in the event of a temporary electric power interruption, will re-start the clock, but it will be necessary to correct for time lost by means of the TIME SET knob.

Radio reception can sometimes be improved by reversing the power plug in power outlet. Try it both ways and leave it in position giving best reception.

A built-in "Aerovane" loop antenna eliminates the need for an outside antenna. The antenna is somewhat directional, therefore, when receiving weak stations, reception may sometimes be improved by rotating the receiver slightly in either direction.

The radio tuning dial is calibrated in kilocycles minus the last two significant figures. A station listed at 900 kilocycles would be tuned in at 9, etc.

ALARM OPERATION

Pull out and turn AUTO SET knob in a counterclockwise direction only until the RADIO ALARM SET POINTER indicates the time at which you desire the alarm to ring. The alarm will begin to ring 10 minutes later than the set time and will continue to ring for one hour or until AUTO SET knob is pushed in.

MANUAL RADIO OPERATION

1. Turn OPERATION SELECTOR knob to ON. Allow a short period of time for tube warm-up.
2. Tune to desired station with the STATION TUNING knob.
3. Adjust volume to desired loudness with VOLUME knob.
4. The radio will play until OPERATION SELECTOR is turned to OFF.

AUTOMATIC RADIO OPERATION

Another feature of the Motorola RADIO-ALARM permits you to pre-set the radio to turn on automatically at any pre-determined time up to twelve hours in advance, to allow you to listen to a favorite program or to awaken you with music in the morning.

LIST APPLICABLE BULLETINS & SUPPLEMENTS HERE:

By plugging an appliance into the receptacle on the back of the receiver, you may turn it on automatically, along with the radio.

To Set Receiver For Automatic Operation

1. Turn OPERATION SELECTOR knob to ON. Allow a short period of time for tube warm-up.
2. Set the radio dial to the station you would like to hear at any pre-determined time, up to twelve hours in advance, and adjust volume to desired loudness.
3. Pull out and turn AUTO SET knob in a counterclockwise direction only until RADIO ALARM SET POINTER indicates time radio is to be turned on automatically.
4. Turn OPERATION SELECTOR to OFF and then pull OPERATION SELECTOR out for AUTO. Leave in AUTO position.
5. The radio is now set to turn on automatically at time indicated by RADIO ALARM SET POINTER. The radio will turn on at pre-set time and will continue to play until OPERATION SELECTOR is pushed in and located in the OFF position.

SLEEP CONTROL

The sleep control feature is a timing device for turning the radio and appliance off after any pre-set interval of time up to one hour. This feature allows you to listen to the radio while you are in bed, with the assurance that it will shut off automatically after you are asleep. Or, you may turn off a lamp or appliance, if desired.

If appliance is not desired during the time the sleep control is in operation, disconnect appliance from receptacle.

To Set Sleep Control

Turn OPERATION SELECTOR knob counterclockwise.

The farther the control is turned, the longer the radio will play, up to a maximum of 60 minutes.

SLEEP CONTROL AND AUTOMATIC OPERATIONS COMBINED

By combining the sleep control and automatic radio operation, it is possible to turn the radio off automatically and to turn it on again automatically. Thus, you may go to sleep at night with music and be awakened with music again the following morning.

To Use This Feature, Set Controls As Follows:

1. Pull out and turn AUTO SET knob in a counterclockwise direction only until RADIO ALARM SET POINTER indicates time radio is to be turned on automatically; push knob back in (if you wish alarm to ring leave AUTO SET knob pulled out).
2. Turn OPERATION SELECTOR to OFF and then pull OPERATION SELECTOR out for AUTO.
3. Turn OPERATION SELECTOR counterclockwise for SLEEP CONTROL.
4. Tune in desired station and adjust volume.

APPLIANCE OUTLET

To control an electrical appliance automatically, plug it into the receptacle on the back of the radio. It will then be turned on or off simultaneously with the radio.

CAUTION: Note that the rating of the outlet is 1100 watts or less.

If radio reception is not desired when operating the appliance, rotate the radio volume control to the minimum volume position.

SERVICE NOTES

TO REMOVE RADIO CHASSIS FROM CABINET

1. Pull off the two radio control knobs.
2. Remove the four hex head screws which hold the loop to the cabinet, disconnect leads, and remove loop.
3. From the rear of the cabinet, remove the two hex head screws at the rear edge of the radio chassis.
4. Disconnect clock plug from radio chassis.
5. Slide the radio chassis from the cabinet.
6. To service chassis when clock is disconnected, connect jumper wire between pins 3 & 4 of clock receptacle on chassis to complete power circuit.

TO REMOVE CLOCK FROM CABINET

1. Remove radio chassis from cabinet as described above.
2. Remove two nuts that mount speaker and remove speaker from cabinet.
3. Remove clock control knobs. They pull off.
4. From inside of cabinet remove four speednuts that mount bezel.
5. Lift off clock crystal and overlay.
6. From the inside of cabinet, remove two nuts that mount clock.
7. Carefully remove clock from cabinet.

TO SYNCHRONIZE HANDS AND ALARM

If the hands have been moved accidentally, it will be necessary to re-synchronize them with the alarm dial, as

outlined below:

1. Pull out the OPERATION SELECTOR knob to the AUTO position.
2. Slowly rotate the time set knob clockwise (as viewed from rear) until the clock switch contacts close. This is indicated by an audible click, or an ohmmeter connected to pins 3 & 4 of the clock plug, can be used as a visual indicator.
3. Set all the hands to indicate 12 o'clock.
4. Check the automatic operation to be sure the switch contacts close at the time indicated on the alarm dial.

CLOCK REPAIR INFORMATION

Telechron timers can be repaired at Authorized Telechron Service Stations or at the Product Service Department, Ashland, Mass. Consult your Motorola Distributor for the name of the nearest Telechron Service Station, or refer to the classified section of the telephone directory in large cities.

The timer should be removed from the radio cabinet and packed carefully in order that no further damage results during shipment.

An acknowledgement with a quotation and a request for payment will be sent to the dealer before the repair is made. The timer will be returned to the dealer on receipt of payment. If the timer is within warranty, repairs will be made on a no-charge basis.

ALIGNMENT

NOTE: Use an isolation transformer placed between the power line and the receiver to avoid hum and electrical shocks. If an isolation transformer is not available, connect the low side of the signal generator to B- through a .1 mf capacitor.

1. Connect a low range output meter across speaker voice coil.

2. Connect the low side of the signal generator through a .1 mf capacitor to B-.

3. Set the signal generator for 400 cycle, 30% modulation.

4. Turn the receiver volume control to maximum.

5. Use a small fibre screwdriver for aligning the IF transformers.

6. As stages are brought into alignment, reduce the signal generator output to a level which produces less than .40 volts (.05 watt) across the voice coil to avoid overloading the receiver.

7. See Figure 1 for adjustment locations and the following chart for procedure.

ALIGNMENT CHART

STEP	DUMMY ANTENNA	GENERATOR CONNECTION	GENERATOR FREQUENCY	GANG SETTING	ADJUST (See Fig. 1)	REMARKS
IF ALIGNMENT 1.	.1 mf	Grid of conv. (pin 7, 12BE6)	455 Kc	Fully open	1, 2, 3 & 4 (IF cores)	Adjust for maximum.
RF ALIGNMENT 2.	.1 mf	Grid of conv. (pin 7, 12BE6)	1620 Kc	Fully open	5 (Osc)	Adjust for maximum.
3.	-	Radiation loop*	1400 Kc	Tune for max	6 & 7 (RF & Ant trim)	Adjust for maximum.

*Connect generator output across 5" diameter, 5 turn loop and couple inductively to receiver loop. Keep loops at least 12" apart.

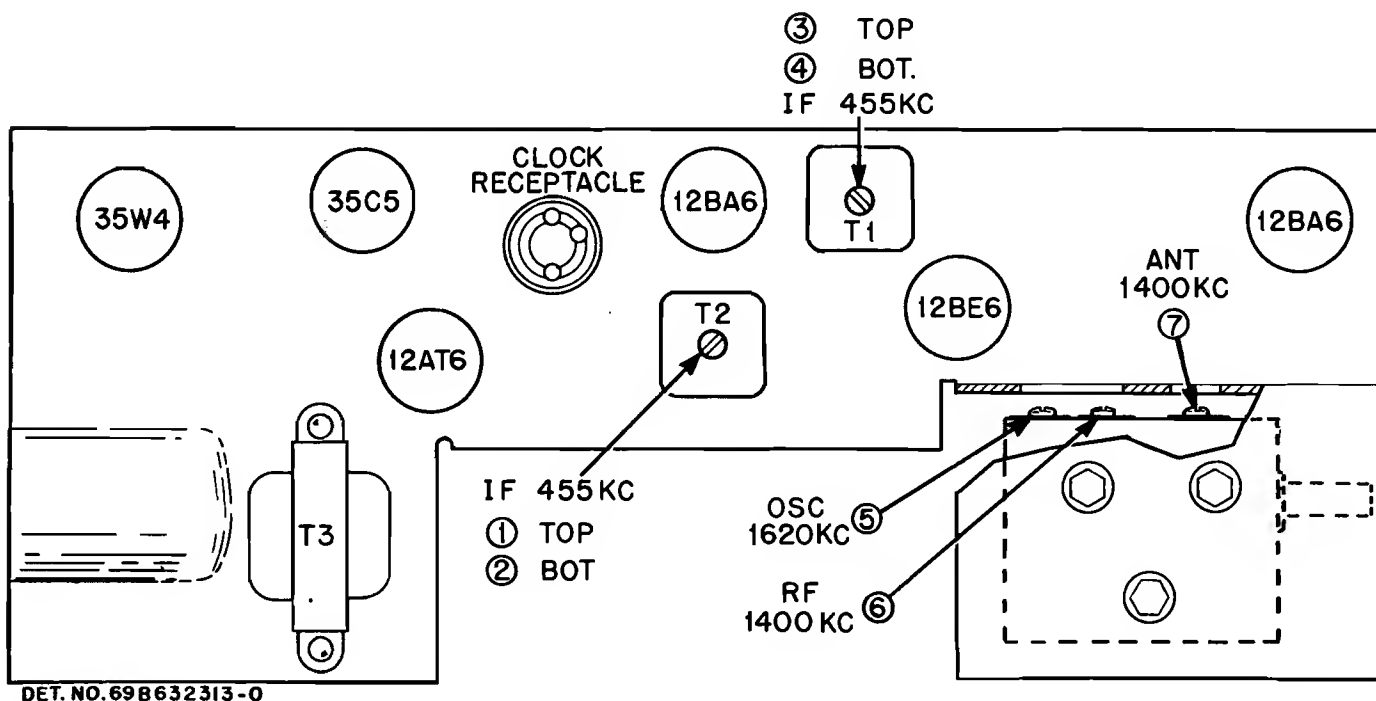


FIGURE 1. TUBE & TRIMMER LOCATIONS

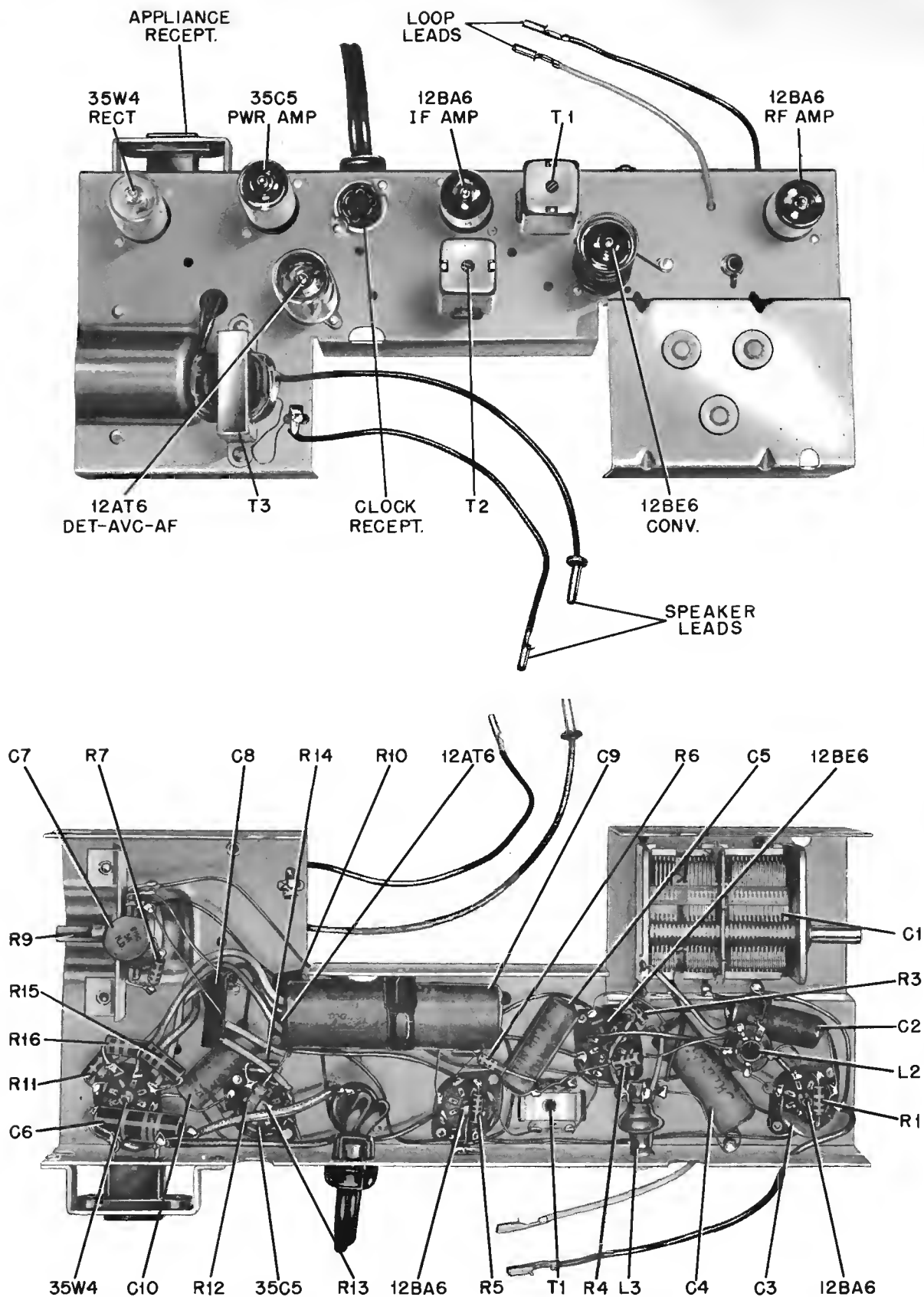


FIGURE 2. PARTS LOCATIONS

REPLACEMENT PARTS LIST

NOTE: When ordering parts, specify model number of set in addition to part number and description of part.

Ref. No.	Part Number	Description	List Price	Part Number	Description	List Price
CHASSIS PARTS - ELECTRICAL				CHASSIS PARTS - MECHANICAL		
C-1	19B631247	Cap, variable: 3-gang.....	3.50	43K610736	Bushing, line cord strain relief (use with 43K610737 retainer)....	.20
C-2	8R121005	Cap, paper: .05 mf 200V....	.25	42A75825	Clip, electrolytic mtg.....	.05
C-3	21R410036	Cap, ceramic disc: 100 mmf 450V.....	.35	42B485548	Clip, IF transformer mtg.....	.35
C-4	8K72686	Cap, paper: .15 mf 200V....	.25	42A522402	Clip, tube shield mtg.....	.05
C-5	8R121005	Cap, paper: .05 mf 200V....	.25	30K620856	Cord, line: with plug.....	1.00
C-6	8K490232	Cap, molded paper: 47,000 mmf 400V.....	.30	5A19658	Eyelet, spacer (gang mtg).....	.25
C-7	21R115312	Cap, ceramic disc: .005 mf 450V.....	.25	5A70404	Grommet, gang mtg: rubber.....	.05
C-8	21B482847	Multiple Capacitor Plate....	.65	29A620057	Lug, terminal (loop & transformer leads).....	.25
C-9	23B484234	Cap, electrolytic: 40-20-20 mf/150V.....	1.95	9A721182	Receptacle, appliance.....	.30
C-10	8R121566	Cap, paper: .02 mf 400V....	.25	9A630708	Receptacle, clock.....	.15
E-1	59K631267	Clock Assembly, electric: Telechron; with hands; less leads NOTE: SEE SERVICE NOTES FOR CLOCK REPAIR INFORMATION.....	--	43K610737	Retainer, line cord strain relief (use with 43K610736).....	.20
L-1	24C631265	Antenna Loop & Panel.....	1.25	26A481521	Shield, spring (for 12BE6).....	.50
L-2	24K631517	RF, coil.....	.95	26A522403	Shield, tube (for 12AT6).....	.05
L-3	24B631516	Oscillator Coil.....	1.00	9R119819	Socket, tube: miniature; 7-prong.	.15
LS-1	50C631268	Speaker: 5" x 7"; PM; 3.2 ohm VC.....	5.50* exch 4.15	CABINET PARTS		
<u>Resistors Note:</u> All resistors are insulator carbon type unless otherwise specified				13D631272	Bezel, clock trim: chrome plated.	2.65
R-1	6R3992	150 20% 1/2W.....	1.20	43A631570	Bushing, speaker mtg.....	.05
R-2	6R3949	470 20% 1/2W.....	1.20	16E631089	Cabinet, table model: plastic; mahogany; less clock bezel, clock face and top cover (63C1).....	5.70*
R-3	6R6028	22,000 20% 1/2W.....	1.20	16K631091	Cabinet, table model: plastic; sand; less clock bezel, clock face and top cover (63C2).....	7.10*
R-4	6R6075	100,000 20% 1/2W.....	1.20	16K631092	Cabinet, table model: plastic; spruce; less clock bezel, clock face and top cover (63C3).....	7.10*
R-5	6R3992	150 20% 1/2W.....	1.20	39A28036	Clip, speaker mtg.....	.15
R-6	6R3927	2.2 meg 20% 1/2W.....	1.20	15K631095	Cover, cabinet top: plastic; mahogany; less handle (63C1).....	1.85
R-7	6R6012	33,000 20% 1/2W.....	1.20	15K631096	Cover, cabinet top: plastic; sand; less handle (63C2).....	2.20
R-8	6R6056	47,000 20% 1/2W.....	1.20	15K631097	Cover, cabinet top: plastic; spruce; less handle (63C3).....	2.20
R-9	18K631259	Volume Control: 1 meg.....	.80	61C631088	Crystal, plastic (clock face cover)	1.50
R-10	6R2109	10 meg 20% 1/2W.....	1.20	55A631263	Handle, cabinet: chrome plated...	.65
R-11	6R5683	27 10% 1/2W.....	1.20	36C631248	Knob, tuning: mahogany (63C1)....	.45
R-12	6R6032	470,000 20% 1/2W.....	1.20	36K631249	Knob, tuning: sand (63C2).....	.45
R-13	6R6032	470,000 20% 1/2W.....	1.20	36K631250	Knob, tuning: spruce (63C3).....	.45
R-14	6R3992	150 20% 1/2W.....	1.20	36K631252	Knob, volume: mahogany (63C1)....	.45
R-15	6R3953	1000 20% 1W.....	.20	36K631253	Knob, volume: sand (63C2).....	.45
R-16	6R488025	100 20% 1W.....	.20	36K631254	Knob, volume: spruce (63C3).....	.45
T-1	24C485553	IF Transformer: 455 Kc; complete.....	1.45	36K630829	Knob, clock control: black.....	.20
T-2	24C485555	IF Transformer: 455 Kc; complete.....	1.70	2S118776	Nut, speednut (bezel mtg).....	.15
T-3	25K631515	Output Transformer.....	1.55	2S115560	Nut, speednut (top cover mtg)....	.20
				13C631256	Overlay, clock face.....	1.25
				28K630826	Plug, connector (connects clock to radio chassis).....	.10

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

*Plus Federal Excise Tax At Current Rate